

REMARKS:

In the specification, at the bottom of page 3, the misspelling of the word "blanching" has been corrected.

In the claims, claim 9 has been canceled obviating the rejection under 35 USC 112. Also, in claim 16, the step lettering has been corrected to place it in correct order.

Claims 1 and 9-12 have been rejected under 35 USC 102 (b) as being anticipated by Bell et al (US 4,504,509) and Mizoguchi et al (US 5,362,520). This rejection is respectfully traversed for the following reasons.

A review of Bell et al will show that it is involved in a completely different application than that of this invention. Bell et al is directed to liquid starch batters used for coating foodstuffs and the storage of such batters. Because of microbial spoilage during storage, such batters could not be stored in liquid form. Conventional aseptic processing to sterilize the liquid batters could not be used with available batters which contained large quantities of ungelatinized starch. That is because aseptic processing entails heating at elevated temperatures and this would cause the starch to gelatinize making it unacceptable for commercial use (coatability and processability at increased viscosity). See Bell et al, col. 1, l. 10 to 28.

On the other hand, the starch succinate ester of this application is used for a completely different purpose, i.e. to reduce fat content in fried foods. The coated starch succinate ester is cooked with the food. Thus Bell et al involves an ungelatinized, uncooked, highly crosslinked starch while this application involves a coated, cooked starch succinate ester for fat reduction in fried foods.

More particularly, Bell et al disclose a liquid batter for use in coating foodstuffs which comprises a blend of ungelatinized, highly crosslinked, high amylose starch. The highly crosslinked starch may be prepared using a variety of crosslinking agents including succinic anhydride (col. 3 lines 1-27). It is further and significantly noted in Bell et al, that where the starch has not been highly crosslinked, the product lacks sufficient heat resistance to withstand the elevated temperatures encountered in the aseptic processing (col. 3, lines 28-34). Accordingly, Bell et al is strictly involved with the use of a highly crosslinked starch.

The invention as described and being claimed involves a starch succinate ester. This is formed from the reaction of succinic anhydride with starch in an alkaline solution under controlled pH conditions (p. 4, l. 9-22 of application). There is no crosslinking of starch with the anhydride under these conditions, only the formation of starch succinate (mono) ester. In order to crosslink starch with succinic anhydride (i.e. form a starch succinate diester), the anhydride must either be in the form of a mixed anhydride (such as the mixed anhydride formed by reacting acetic anhydride with succinic anhydride) or the reaction temperature must be high (e.g. 350 F).

Accordingly, succinic anhydride is reacted with starch under different conditions to prepare either the starch succinate ester as in this invention or the crosslinked starch (succinate diester) as required by the Bell et al patent. Therefor, Bell et al disclose and require the use of a different starch, i.e. a highly crosslinked starch and not a starch succinate ester.

Thus Bell et al is involved with the use of a different starch, i.e. highly crosslinked starch (e.g. starch succinate diester) vs. a starch succinate (mono) ester and is involved in a completely different application, i.e. liquid starch batters that may be aseptically processed and stored vs. a starch succinate ester coated on foods to provide fat reduction in fried products. It is submitted that Bell et al neither discloses nor suggests the claimed invention

Claims 1 and 9-12 have been rejected under 35 USC 102 (b) as being anticipated by Mizoguchi et al (US 5,362,510). Mizoguchi et al is directed to processed starch used as an ingredient in bakery products to improve the prepared foods texture and inhibit degradation. The reference does not coat food with any starch and it is not concerned in any way with fat reduction in a fried food product. Mizoguchi et al disclose a variety of starch materials for use in their application. Such starch materials must be crosslinked and may also be esterified or etherified, i.e. the starch may be a crosslinked starch ester or a crosslinked starch ether (col. 4, l. 54-61). Further, the starch must meet a number of properties including hot water solubility, particle size, and cold water and hot water swelling properties (col. 2, l. 67 to col. 3, l. 38). The degree of crosslinking has an important effect on swelling power of the starch and the prepared product.

Accordingly, Mizoguchi et al is concerned with certain crosslinked starch materials having specified properties making them useful as a food ingredient to provide the prepared

bakery product with improved texture. There is no disclosure or teaching of using starch succinate ester as a food coating to provide the fried food product with reduced fat content as being claimed in this invention. The starches of Mizoguchi et al are different and they are being used to provide different food characteristics. Accordingly, reconsideration and withdrawal of this rejection is respectfully requested.

Claims 2-6 have been rejected under 35 USC 103 (a) as being unpatentable over Bell et al (US 4,504,509) in view of Richards et al (US 4,035,235). Richards et al disclose a method of making a lipophilic starch derivative such as esters of starch with n-octenyl succinic anhydride. The reference further discloses the conversion of the starch using enzyme treatment to reduce viscosity.

As noted above, Bell et al is involved with use of highly crosslinked starch and not the starch succinate ester of this invention. Richards et al teach the use of substituted dicarboxylic acid anhydrides in esterifying starches, where the substituted anhydride group is a hydrophobic group. The reference then further enzyme converts the starch derivative. However, the starch composition of Richards et al is a lipophilic starch which is different from Bell et al and there is no suggestion of how to combine the references to make obvious the invention being claimed.

Claims 8 and 13-22 have been rejected under 35 USC 103 (a) as being unpatentable over Bell et al (US 4,504,509) in view of Wu et al (US 5,648,110). Bell et al does not disclose the use of starch succinate ester as in this invention but rather a highly crosslinked starch. The Examiner indicates that Wu et al teach the addition of different types of starch in combination with the main starch component. However, Wu also teaches the use of crosslinked starches as the main component and does not cure the deficiency of Bell which does not use or suggest the use of a starch succinate ester in a fried food composition as claimed to reduce fat content. Accordingly, the combination of references does not teach or suggest the claimed invention.

Claims 1, 2 and 7 have been rejected under 35 USC 103 (a) as being unpatentable over Shi et al (US 2003/009974).

Shi et al disclose a method of glazing food using a solution of glaze base containing a converted starch. The reference discloses the use of a wide variety of well known chemically modified starches (col 15). Examiner acknowledges that Shi et al do not

disclose the food composition is a fried composition. Examiner further indicates that it would be obvious to one skilled in the art to make a fried composition when wanting food having different texture and flavor. Further, Examiner indicates both baking and frying are well known cooking processes in the art.

The invention as claimed is directed to a fried food coated with starch succinate ester prior to frying. This fried food composition significantly has a reduced fat content while retaining acceptable organoleptic properties.

In contrast, Shi et al is involved with a glazed food composition wherein the glaze provides a surface seal or barrier or sheen depending on the application. There is no teaching or suggestion of using a glaze to provide a food composition with fat reducing properties as the specific composition of this invention does. In fact, one reading the disclosure of Shi et al for glazed food products would not in any way be motivated or taught how to prepare a reduced fat content fried food product. Accordingly, reconsideration and withdrawal of this rejection is respectfully requested.

In view of the above amendments and remarks, Applicant submits that this application is in proper form and the claims in condition for allowance. Reconsideration and allowance is earnestly solicited.

Respectfully submitted,

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